

Claims:

1. A method for embedding a component in a base and for forming electrical contacts with the component, the method comprising

5

- taking a baseboard as the base,
- making conductive patterns on the baseboard,
- making a hole in the baseboard in such a way that the position of the hole is selected in relation to the conductive patterns made on the baseboard,
- 10 - placing a component in the hole, in such a way that the component is aligned in relation to the conductive patterns made on the baseboard,
- securing the component in place in the hole made in the baseboard,
- making an insulating layer made on at least one surface of the base, in such a way that the insulating layer covers the component,
- 15 - making contact openings for the component in the insulating layer, and
- making conductors to the contact openings and on top of the insulating layer, in order to form electrical contacts with the component.

10

15

2. A method according to Claim 1, in which the hole, which is made in the baseboard of the circuit board for a component, is a through hole.

20

3. A method according to Claim 2, in which insulating material is grown on the side walls of the hole made for a component, in order to create interference protection around the component.

25

4. A method according to any of Claims 1 - 3, in which the component to be placed in the hole is a microcircuit, on the first surface of which there are contact areas or contact protrusions for creating electrical contacts.

30

5. A method according to Claim 4, in which, after making the hole

- tape or a tape-like film is laminated on the first side of the baseboard,
- the microcircuit is placed in the hole made in the baseboard from the second-

surface side of the baseboard, so that the first surface of the microcircuit lies against the tape or tape-like film and is essentially on the same level as the first surface of the baseboard, and

- the microcircuit is secured in place in the hole made in the baseboard by filling the hole with a filler material.

6. A method according to Claim 5, in which, after the securing of the microcircuit

- the tape or tape-like film laminated on the first surface of the baseboard is removed,

- an RCC foil is laminated onto the first surface of the baseboard, and

- conductive patterns and contact openings for the components are made in the RCC foil.

7. A method according to Claim 5, in which holes are made for feed-throughs and, after the securing of the microcircuit

- the tape or tape-like film laminated on the first surface of the baseboard is removed,

- RCC foils are laminated onto the first and second surfaces of the baseboard,

- conductive patterns and contact openings for the components and feed-throughs are made in the RCC foil laminated onto the first surface of the baseboard, and

- conductive patterns and contact openings for the feed-throughs are made in the RCC foil laminated onto the second surface of the baseboard.

8. A method according to Claim 5, in which, after the securing of the microcircuit

- the tape or tape-like film laminated on the first surface of the baseboard is removed,

- a pre-preg epoxy foil is made on the first surface of the baseboard,

- contact openings for the component are made in the epoxy foil, and

- conductive patterns are made on top of the epoxy foil.

9. A method according to Claim 5, in which holes for feed-throughs are made in the base, and, after the securing of the microcircuit

5 - the tape or tape-like film laminated on the first surface of the baseboard is removed,

 - pre-preg epoxy foils are laminated onto the first and second sides of the baseboard,

 - contact openings for the component and feed-throughs are made in the epoxy foil of the first surface of the baseboard, and

10 - contact openings for the feed-throughs are made in the epoxy foil of the second surface of the baseboard.

10. A method according to any of Claims 4 - 9, in which an electrical contact is formed with the microcircuit from the direction of the first surface of the baseboard, after the
15 microcircuit has been placed in the hole made in the baseboard.

11. A method according to any of Claims 4 - 10, in which an electrical contact is formed with the microcircuit by growing conductive material in the contact areas of the microcircuit, or on top of its contact protrusions.
20

12. A method according to any of Claims 4 - 11, in which the electrical contact with the microcircuit is formed without solder using a circuit-board manufacturing technology.

13. A method according to any of Claims 1 - 12, in which more than one component is
25 embedded in the base in a corresponding manner.

14. A method according to Claim 13, in which a separate hole is made in the baseboard for each component to be embedded in the base and each component to be embedded in the base is located in its own hole.
30

15. A method according to any of Claims 1 - 14, in which at least two microcircuits are embedded in the base, and in which a conductive layer is grown, which is connected directly to the contact areas or contact protrusions of at least two microcircuits, in order

to connect the microcircuits electrically to each other to form an operational totality.

16. A method according to any of Claims 1 - 15, in which a multi-layer structure is manufactured, in which there are at least four conductive layers on top of each other.

5

17. A method according to any of Claims 1 - 16, in which a first base and at least one second base are manufactured and the bases are assembled and secured on top of each other in such a way that the bases are aligned in relation to each other.

10

18. A method according to any of Claims 1 - 16, in which

- a first and a second base and an intermediate layer are manufactured,
- the second base is placed above the first base and the second base is aligned in relation to the first base,
- the intermediate layer is placed between the first and the second bases, and
- the first and second bases are laminated to each other with the aid of the intermediate layer.

15

19. A method according to Claim 18, in which

20

- at least one third base and an intermediate layer for each third base are manufactured,
- each third base is placed in turn above the first and second bases and each third base is aligned in relation to one of the lower bases,
- an intermediate layer is placed beneath each third base, and
- the first, second, and each third base are laminated to each other with the aid of the intermediate layers.

25

20. A method according to any of Claims 17 - 19, in which holes for feed-throughs are drilled through the bases secured on top of each other and conductors are made in the drilled holes for connecting the electronic circuits of each base to each other to form an operational totality.

30

21. A method according to any of Claims 1 - 20, in which the temperature of the baseboard, component, and conductive layer connected directly to the component, is, during the process, less than 200°C and preferably in the range 20 - 85°C.
- 5 22. An electronic module, which is manufactured using a method according to any of Claims 1 - 21.